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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,259	07/29/2003	Craig A. Hamilton	9151-26	6693

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EXAMINER

HORWAT, JENNIFER A

ART UNIT	PAPER NUMBER
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3768

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/629,259

Applicant(s)

HAMILTON ET AL.

Examiner

Jennifer Horwat

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/4/05 5/27/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 9-11 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claims 9 and 10 recite the limitation "adding frames to and/or removing frames from", however claim 11, which is dependant on the above claims only states "adding frames". It is therefore unclear what subject matter the applicant regards as his invention and if both adding and removing frames is being claimed, or one or the other.
4. Claim 11 recites the limitation "adding frames". There is insufficient antecedent basis for this limitation in the claim in the case where claims 9 and 10 are only limited to the removed frames.
5. Claim 20 recites the limitation "the baseline". There is insufficient antecedent basis for this limitation in the claim. It appears the claim may have been intended to be dependant on claim 19, which would resolve the insufficient antecedent basis and was interpreted as such for the purpose of examination.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-7, 8-10, 12-19, 21, 22, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Lobodzinski (US 5619995). Lobodzinski discloses a system for used with diagnostic imaging systems for the acquisition, display, and processing for enhanced visualization of data. Although much of the disclosure is directed to an ultrasound system, other systems may be used such as a "cardiac Magnetic Resonance Imaging apparatus" (col 8, line 10). Lobodzinski states that although most diagnostic imaging systems provide some sort of cine loop review (col 2, line 4), they typically do not provide without the additional processing and display that Lobodzinski discloses. The cine-loops are adjusted based on heart rate where the number of frames obtained is based on the heart period (col 13, line 15). Two or more such loops may be synchronized and simultaneously displayed. Frames may be removed from the slower heart rate loop so that the cycles will be displayed simultaneously (col 13, lines 24-35) so that the temporal placement of the frames in each cycle are the same and therefore each cycle has the same number of frames (figure 7). Lobodzinski states that cycle synchronization is important in stress testing, as patient management decisions are made from visual assessment of the motion displayed simultaneously (col 13, lines 1-5). Simultaneous side-by-side comparisons may be used during examination for diagnostic

purposes (col 1, lines 61-65). Stress studies are done consisting of two or more sets of, for example pre- and post-exercise, cardiac imaging data (col 5, line 10). The pre-exercise data establishes a baseline dataset. Comparison may also be made between different locations, or projections, of the heart during the same study (col 13, lines 8-10). Additionally, characteristics of the loops may be adjusted, including editing functions (col 12, line 17). The size of the display area and the frame rate may be adjusted for one or more loops (col 12, lines 60-65). When more than one loop is selected for display, the display area is automatically adjusted and the size of all of the frames in the selected loop, as well as those in the other loop are adjusted as well (col 12, lines 38-42 and figure 6).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brackett (US 2003/0206646). Lobodzinski, as discussed above, discloses selection of which frames to include in the cine loop, for example by removing frames, however fails to explicitly disclose that frames may be added by repeating frames from a cine loop. Brackett also discloses a system for diagnostic imaging including the use of cine loops for storing and displaying imaging data. Additionally, Brackett discloses that duplicate

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frames may be inserted between existing frames in order to achieve a given display frame rate (paragraph 29). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Lobodzinski in light of the teachings of the reference by Brackett to add the capability to repeat frames in order to, as Brackett states, achieve smoother transitions, or to provide another way to achieve desired frame rate.

10. Claims 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holloway, et al (US 6500123). Lobodzinski, as discussed above, discloses synchronizing frame loops, such as a baseline loop and a stress test loop, however fails to disclose registering the two loops. Holloway also discloses a system for comparing images during stress test heart studies and further discloses that images may be aligned through transformation of one data set to the coordinate system of the other, also known as registration, in order to allow differences and similarities between the views to be readily observed. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Lobodzinski in light of the teachings of the reference by Holloway to include registration in order to provide, as Holloway states, improved alignment and to reduce variability in diagnoses (col 1, lines 45-65).

11. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Song, et al (US 5680862). Lobodzinski, as discussed above, substantially discloses the invention as claimed including adjusting the display size of the loops. However, Lobodzinski fails to explicitly disclose cropping frames to provide a portion of the frame.

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Song also discloses an imaging system using MRI cine display where the images displayed in the cine loop are cropped to a region surrounding the left ventricle (col 8, lines 60-65). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Lobodzinski in light of the teachings of the referency by Song in order to including a cropping function to provide improved visualization of details of the heart, such as the left ventricle.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Horwat whose telephone number is (571) 272-2811. The examiner can normally be reached on M-Th 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on (571) 272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jah
4/26/06


ELENI MANTIS-MERCADER
PRIMARY EXAMINER